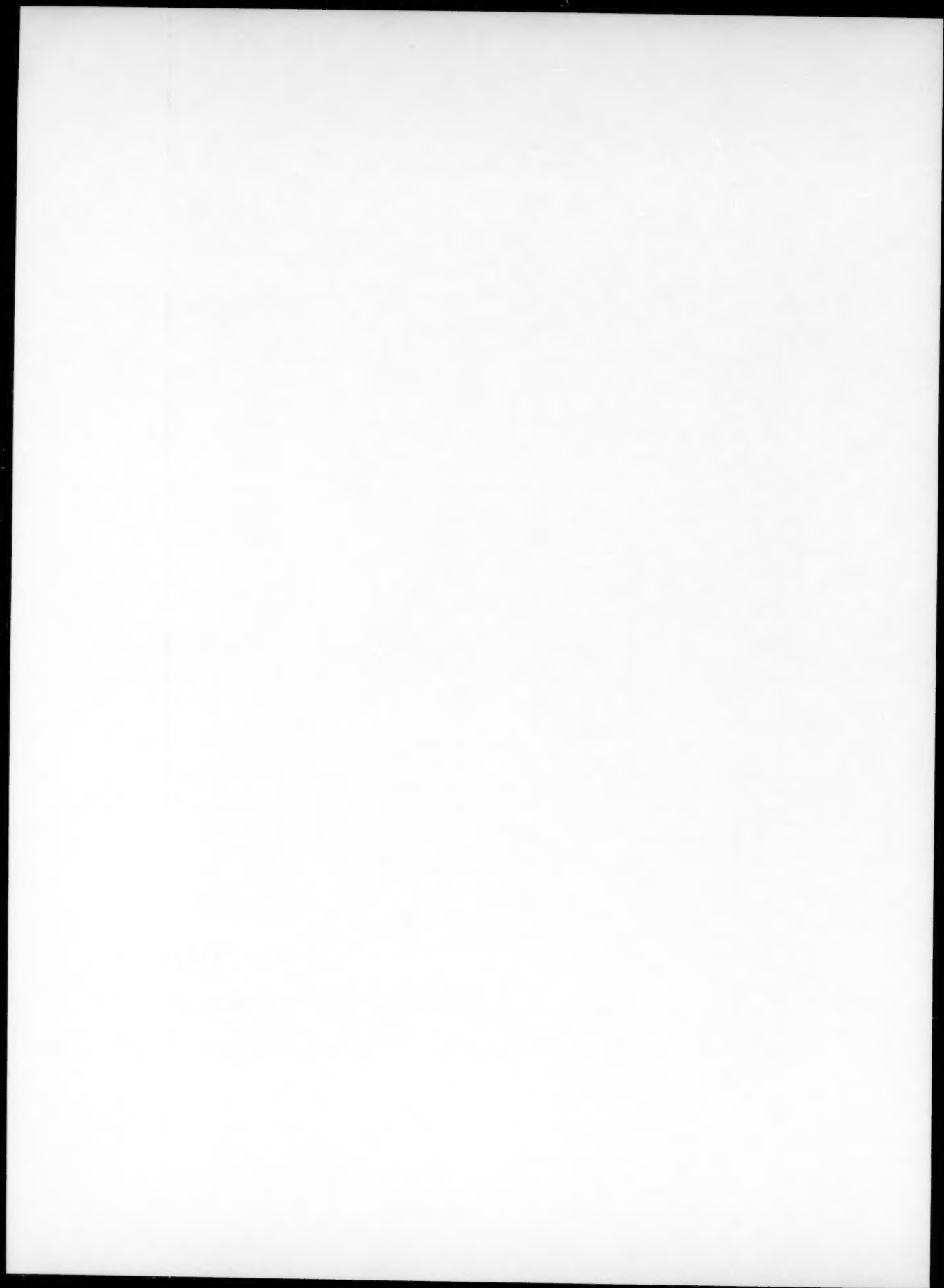


**INDEX**

**SOVIET RADIOCHEMISTRY**

**Volume 6, 1964**



## SOVIET RADIOCHEMISTRY

Volume 6, 1964

(A translation of Radiokhimiya)

## A

Afanas'ev, Yu. A. - 480  
 Alikhanova, Z. M. - 680  
 Alkhazov, I. D. - 248  
 Amar Nath - 108  
 Ampelogova, N. I. - 501, 507  
 Andreev, P. F. - 89  
 Andreev, F. P. - 470  
 Andreeva, I. V. - 89, 470  
 Antonov, P. G. - 561  
 Apraksin, I. A. - 40  
 Avdonina, E. N. - 312, 613

## B

Babayan, S. G. - 149  
 Bagretsov, V. F. - 26  
 Baklanovskii, E. D. - 495  
 Bantysh, A. N. - 354  
 Barakat, M. F. - 583, 608  
 Batorovskaya, E. D. - 167, 175, 180  
 Bedina, O. L. - 122  
 Bekker, A. - 304  
 Blinova, N. I. - 445  
 Blokhina, V. K. - 67  
 Bobrova, V. N. - 1, 6  
 Brandshtet, I. - 460  
 Brezhneva, N. E. - 256, 266  
 Brigeovich, R. F. - 244  
 Bryukher, É. - 123  
 Bulanova, I. D. - 601, 604  
 Bulyanitsa, L. S. - 373, 386, 648

## C

Chachakov, A. F. - 482  
 Chaikhorskii, A. A. - 473  
 Chepyzhev, Yu. B. - 574  
 Chizhov, A. V. - 52  
 Chmutova, M. K. - 625

## D

Dakar, G. M. - 396  
 Danilov, L. T. - 470  
 Deberdeeva, R. Yu. - 442  
 Degtyarev, A. Ya. - 60

Dubrovin, V. S. - 487  
 D'yachkova, R. A. - 91  
 Dzantiev, B. G. - 359, 361

## E

Elizarova, A. N. - 364  
 Erenburg, A. M. - 282

## F

Fedorova, L. A. - 631  
 Filatov, É. S. - 465, 574  
 Filippov, A. P. - 706  
 Filippov, V. K. - 528, 532  
 Firsova, L. P. - 583, 589, 608  
 Fomin, V. V. - 367  
 Forsy', M. - 589

## G

Galitskaya, I. A. - 76  
 Gel'man, A. D. - 206  
 Ginzburg, F. L. - 450, 455, 477  
 Golutvina, M. M. - 711  
 Gorshkov, V. V. - 80  
 Gorshtein, G. I. - 8  
 Grebenshchikova, V. I. - 1, 6  
 Grosse-Ryken, Kh. - 727  
 Gureev, E. S. - 639

## I

Ignat'ev, Yu. N. - 510  
 Iofa, B. Z. - 396, 404  
 Ioffe, É. M. - 116  
 Ivanova, K. S. - 565

## K

Kanevskii, E. A. - 706  
 Karasev, B. V. - 613  
 Kashirina, F. D. - 184, 635  
 Kazakov, V. P. - 282  
 Kazakova, T. A. - 711  
 Kereichuk, A. S. - 52  
 Keshishyan, G. O. - 470  
 Khalkin, V. A. - 727  
 Kharitonov, Yu. Ya. - 680

Kherrmann, E. - 727  
 Khoreshko, L. T. - 256  
 Khun-Gui, Su. - 460  
 Khvorostin, Ya. S. - 699  
 Kirgintsev, A. N. - 432  
 Kirkova, E. K. - 160  
 Knobloch, V. - 460  
 Kochina, M. P. - 244  
 Komarov, E. V. - 410  
 Komlev, L. V. - 565  
 Kopach, S. - 404  
 Korovin, S. S. - 40  
 Korpusov, G. V. - 256, 266  
 Kosyakov, V. N. - 639  
 Kozyreva, L. S. - 34  
 Krasnov, K. S. - 184, 635  
 Krzhivanek, M. - 460  
 Kukushkin, Yu. N. - 324, 330  
 Kung Shu-Ch'ung - 722  
 Kurbatov, V. V. - 445  
 Kuzin, I. A. - 76  
 Kuznetsov, B. S. - 501, 507  
 Kuznetsov, V. I. - 80, 271, 417  
 Kuznetsov, Yu. V. - 233, 364  
 Kuznetsova, A. A. - 167, 175, 180  
 Kuznetsova, G. A. - 711  
 Kuznetsova, Z. M. - 716

## L

Lapitskii, A. V. - 98, 595  
 Laskorin, B. N. - 631  
 Lazarev, L. N. - 699  
 Lebedev, I. A. - 423, 428  
 Lebedev, N. A. - 727  
 Lebedev, V. M. - 26  
 Legin, V. K. - 233  
 Levchenko, A. V. - 615  
 Levin, V. I. - 30, 34, 256  
 Lipovskii, A. A. - 120  
 Lisitsyn, A. P. - 233  
 Luk'yanov, A. V. - 432

## M

Malkin, L. Z. - 248  
 Maly, Ya. - 460

Man'ko, N. M. - 256  
 Marygina, A. B. - 30  
 Mashirov, L. G. - 67, 289  
 Ma Tzu-Kuang. - 663  
 Melikhov, I. V. - 135, 149, 160  
 Melikhov, L. L. - 722  
 Merkulova, M. S. - 160  
 Mertts, N. I. - 318  
 Meshcherova, I. V. - 30  
 Mikheev, N. B. - 18  
 Mironov, V. E. - 102  
 Mishin, V. Ya. - 437, 523, 528, 532  
 Mitrofanov, K. P. - 404  
 Moseev, L. I. - 271, 417  
 Mosevich, A. N. - 510, 663  
 Moskvina, A. I. - 198, 206  
 Moskvina, L. N. - 228  
 Muzyka, I. D. - 619

## N

Nefedov, V. D. - 615  
 Nemodruk, A. A. - 442  
 Neokladnova, L. N. - 295  
 Nesmeyanov, An. N. - 108, 304, 312, 465, 574, 583, 608  
 Nikitina, G. P. - 335  
 Nikitina, S. A. - 120  
 Nikolaev, V. M. - 26  
 Nikolaev, Yu. M. - 711  
 Nikol'skii, V. D. - 122  
 Nosova, N. F. - 60, 532

## O

Opalovskii, A. A. - 716

## P

Pakholkov, V. S. - 49  
 Palei, P. N. - 442  
 Paramonova, V. I. - 52, 487, 495, 510, 663  
 Patrusheva, E. N. - 266  
 Peretrukhin, V. F. - 198  
 Peshchevitskii, B. I. - 282  
 Pettsol'd, V. - 18  
 Pichkov, V. N. - 598  
 Pirozhkov, S. V. - 423, 428  
 Platunova, N. B. - 487, 495  
 Plotnikova, M. V. - 404

Portyanov, V. A. - 722  
 Potapova, S. A. - 94  
 Pozharskaya, M. E. - 122  
 Preobrazhenskii, B. K. - 228  
 Pushlenkov, M. F. - 335, 410, 673, 690

## R

Raevskii, B. N. - 450, 455, 477  
 Razbitnaya, L. M. - 193  
 Reznik, A. M. - 40  
 Rogozina, É. M. - 89  
 Romanenko, É. D. - 619  
 Romanov, G. A. - 119  
 Rozen, A. M. - 40  
 Rozman, I. M. - 482  
 Rudenko, N. P. - 318, 595  
 Ryukhin, Yu. A. - 482

## S

Saed, Abdel Gavad - 595  
 Samartseva, A. G. - 23, 221  
 Samodelov, A. P. - 277, 548  
 Sarvetnikov, O. E. - 30  
 Savich, I. A. - 98  
 Savoskina, G. P. - 673, 690  
 Sayun, M. G. - 347  
 Shagisultanova, G. A. - 295  
 Shalygin, V. A. - 354  
 Shcherbakov, V. A. - 119  
 Shuvaeva, T. M. - 318  
 Shvedchikov, A. P. - 359, 361  
 Shvedov, V. P. - 561  
 Simonyak, Z. N. - 233  
 Skoblo, A. I. - 658  
 Sokolov, A. M. - 248  
 Sokolov, A. P. - 83  
 Solntsev, V. M. - 445  
 Spitsyn, N. M. - 598  
 Spitsyn, Vikt. I. - 91  
 Starik, I. E. - 448, 450, 455, 477, 501, 507  
 Stroganov, E. V. - 83  
 Stupin, N. P. - 631  
 Suglobov, D. N. - 67, 289, 514, 520, 539, 658  
 Suglobova, I. G. - 67, 514, 520

## T

Tananaeva, N. N. - 619  
 Taranov, A. P. - 539  
 Taushkanov, V. P. - 76  
 Tikhomirov, V. I. - 167, 175, 180  
 Tomilov, S. V. - 366  
 Toropova, M. A. - 615  
 Tsareva, K. Kh. - 347  
 Tyutyueva, N. N. - 8

## U

Urayaev, I. A. - 244

## V

Vasharosh, L. - 465  
 Vdovenko, V. M. - 67, 83, 119, 120, 289, 373, 386, 514, 520, 539, 648, 658, 699  
 Vinogradov, E. E. - 117  
 Vorob'ev, A. M. - 601, 604  
 V'yugina, A. F. - 324, 330

## W

Wang I-wui - 514  
 Wang Liang-shen - 304  
 Wung, Hao-ming - 312

## Y

Yakimov, M. A. - 60, 437, 523, 528, 532  
 Yakovlev, G. N. - 423, 428, 639  
 Yashkichev, V. I. - 117  
 Yui Tsyun' - Tsi - 60  
 Yurtov, A. I. - 448

## Z

Zaborenko, K. B. - 722  
 Zaitsev, A. A. - 423, 428  
 Zaitseva, V. P. - 206  
 Zastenker, E. E. - 122  
 Zel'vinskii, Ye. D. - 354  
 Zemlyanukhin, V. I. - 673, 690  
 Zhuravlev, V. E. - 615  
 Zolotov, Yu. A. - 625  
 Zvara, I. - 460  
 Zvarova, T. - 460  
 Zvyagintsev, O. E. - 598

(RADIOKIMIYA)  
Editorial Board

I. P. Alimarin  
A. I. Brodskii  
E. K. Gerling  
A. A. Grinberg  
V. B. Klokman  
L. V. Komlev  
B. V. Kurchatov  
A. N. Nesmeyanov  
A. V. Nikolaev  
B. P. Nikol'skii (Acting Editor)  
S. Z. Roginskii  
V. I. Spitsyn  
I. E. Starik  
V. M. Vdovenko (Editor-in-Chief)  
A. P. Vinogradov

# SOVIET RADIOCHEMISTRY

A translation of **RADIOKIMIYA**

a publication of the Academy of Sciences of the USSR

© 1965 CONSULTANTS BUREAU ENTERPRISES, INC.  
227 West 17th Street, New York 11, N.Y.

Volume 6, Number 1

January-February, 1964

## CONTENTS

	P A G E	
	ENG.	RUSS.
On the Eightieth Birthday of Academician Aleksandr Evgen'evich Fersman .....	1	3
Study of the Coprecipitation of Ce with Crystals of $K_2SO_4$ . III. Interaction of $Ce^{+3}$ with the Surface of Crystals of $K_2SO_4$ —I. V. Melikhov and E. K. Kirkova .....	3	5
Study of Complex Formation in Melts by the Method of Isomorphous Crystallization in the Systems $PbCl_2$ — $Sr \cdot Cl_2$ — $RbCl$ and $PbCl_2$ — $Sr \cdot Cl_2$ — $CsCl$ .....	9	11
On the Adsorption of Radioactive Isotopes from Aqueous and Aqueous-Ethanol Solutions—I. E. Starik, F. L. Ginzburg, and L. D. Sheidina .....	16	19
Extraction Properties of Fermium and Mendelevium ( $TBP-HNO_3$ , $TBP-HCl$ ) —I. Brandshtet, Wang T'ung-Seng, K. A. Gavrilov, E. Gvuzd', Ya. Maly, and M. Taube .....	22	26
Isolation of $Np^{239}$ from Irradiated Uranium by An Ion Exchange Method —A. D. Gel'man, M. P. Mefod'eva, E. D. Kiseleva, M. P. Glazunov, P. N. Kolodchigov, and V. F. Peretrukhin .....	31	35
Kinetics of the Oxidation of U (IV) in Perchloric Acid Solutions by Potassium Chlorate—L. A. Fedorova .....	37	42
The Hydrogen Bond in Alkylammonium Salts. I. Infrared Spectra and Structure of Trioctylammonium Nitrate—V. M. Vdovenko, T. A. Dem'yanova, M. G. Kuzina, and A. A. Lipovskii .....	44	49
The Hydrogen Bond in Alkylammonium Salts. II. Infrared Spectra and Structure of Tridecylammonium Chloride—V. M. Vdovenko, A. A. Lipovskii, and S. A. Nikitina .....	50	56
Study of the Spallation Products of Nuclei of the Rare Earth Elements—A. K. Lavrukhina and G. M. Kolesov .....	55	62
Isolation of Radioactive Cerium without a Carrier from a Mixture of Fission Products —N. E. Brezhneva, V. I. Levin, G. V. Korpusov, N. M. Man'ko, and G. F. Plotnov .....	59	66
Production of Radiation Sources for $\beta$ Spectroscopy by Electrolytic Deposition of Rare Earth Elements—A. F. Novgorodov, V. L. Kochetkov, N. A. Lebedev, and V. A. Khalkin .....	65	73
Chemical Changes in Processes of $\beta$ Decay of $Sb^{125}$ in the Composition of Phenyl Derivatives of Pentavalent Antimony—V. D. Nefedov, I. S. Kirin, and V. M. Zaitsev .....	70	78
Processes and Products of the Interaction of High-Molecular Compounds with Inorganic Salts—I. V. Andreeva, P. F. Andreev, L. T. Danilov, and E. M. Rogozina .....	76	86

Annual Subscription: \$95

Single Issue: \$30

Single Article: \$15

All rights reserved. No article contained herein may be reproduced for any purpose whatsoever without permission of the publisher. Permission may be obtained from Consultants Bureau Enterprises, Inc., 227 West 17th Street, New York City, United States of America.

# CONTENTS (continued)

P A G E  
ENG. | RUSS.

Thorium Acetates—I. Geletseanu, A. V. Lapitskii, M. Veiner, M. A. Salimov, and E. P. Artamonova .....	83	93
BRIEF COMMUNICATIONS		
Extraction of n-Benzoylphenylhydroxylamines of Protactinium, Zirconium, and Niobium from Sulfuric Acid Solutions—R. A. D'yachkova and Vikt. I. Spitsyn .....	91	102
Separation of the Alkali Elements by the Method of Electrophoresis. 1. Separation of Rubidium and Cesium Ions with Ammonium Paratungstate—V. P. Shvedov and G. F. Nichugovskii .....	94	104
Separation of Alkali Elements by the Method of Electrophoresis. II. Separation of Rubidium and Cesium Ions in Solutions of Potassium Ferrocyanide—V. P. Shvedov and G. F. Nichugovskii .....	97	107
Partition Chromatography on Teflon Isolation of Trace Amounts of Se from a SrO Target, Irradiated by Fast Protons—L. N. Moskvina .....	100	110
Isolation of Gold and Thallium from a Complex Mixture of Elements by a Method of Partition Chromatography—B. K. Preobrazhenskii, A. V. Kalyamin, and I. Mikhaleva ..	102	111
Separation of Phenyl Derivatives of Arsenic and Germanium by Partition Chromatography on Paper—V. D. Nefedov, M. A. Toropova, I. V. Krivokhatskaya, and O. V. Kesarev. ....	104	112
Separation of Barium and Strontium by the Method of Exchange in the Amalgam-Solution System—B. P. Kiselev, V. L. Balashov, A. A. Kolchin, and V. V. Lebedev. ....	106	114
Radiochemical Determination of Antimony-125 in Soils—S. V. Iokhel'son and D. K. Popov ....	110	117
On the Separation of Strontium-90 and Yttrium-90 Using Gelatin Foam—V. V. Pushkarev, V. F. Bagretsov, and V. D. Puzako .....	113	120
On the Question of Stoichiometry of the Compound of Uranyl Nitrate with Trioctylammonium Nitrate—V. M. Vdovenko, M. G. Kuzina, and A. A. Lipovskii .....	115	121
Utilization of the Chemical Consequences of the $\beta$ Decay of $Sb^{125}$ for the Synthesis of Tri- $\alpha$ -Naphthyltellurium Derivatives—V. D. Nefedov, I. S. Kirin, and V. M. Zaitsev .....	118	123
Determination of the Solubility of Precipitated Uranyl Phosphates of Alkali Metals by the Tracer Method—I. A. Murav'eva, K. B. Zaborenko, O. G. Nemkova, and Khan De Pin. ....	120	124
Some Properties of Sulfostyrene Cation Exchange Resins and Their Work in the Neutral and Weakly Acidic Region—B. K. Preobrazhenskii and O. M. Lilova .....	124	128
Influence of the Radioactive Emission of $S^{35}$ and $Mo^{99}$ on the Value of the Specific Surface of Molybdenum Disulfide—Vikt. I. Spitsyn, I. E. Zimakov, and N. P. Dobrosel'skaya ....	127	130
$\gamma$ -Spectrometric Method of Analyzing a Mixture of Radioactive Isotopes: Iodine-131 and Iodine-132—S. V. Belov and V. S. Anikin .....	130	132



# SOVIET RADIOCHEMISTRY

A translation of RADIOKHIMIYA

a publication of the Academy of Sciences of the USSR

© 1965 CONSULTANTS BUREAU ENTERPRISES, INC.  
227 West 17th Street, New York 11, N.Y.

Volume 6, Number 2

March-April, 1964

## CONTENTS

	P A G E	
	ENG.	RUSS.
Modern State of the Study of the Process of Cocrystallization of Microimpurities with Crystalline Precipitates—I. V. Melikhov . . . . .	135	137
Study of the Coprecipitation of Cerium with $K_2SO_4$ Crystals. IV. Coprecipitation of Ce in the Crystallization of $K_2SO_4$ from a Neutral Aqueous Solution—I. V. Melikhov and S. G. Babayan . . . . .	149	153
Coprecipitation of Ce with Crystals of $K_2SO_4$ . V. Behavior of Ce in the Recrystallization of a Precipitate of $K_2SO_4$ with a Saturated Aqueous Solution of the Macrocomponent—I. V. Melikhov, E. K. Kirkova, and M. S. Merkulova . . . . .	160	165
Extraction of Uranium (VI) by Tri-n-octylamine (TOA) in the Presence of Certain Cations I. Nitric Acid Solutions—V. I. Tikhomirov, A. A. Kuznetsova, and E. D. Batorovskaya . . . . .	167	173
Extraction of Uranium (VI) by Tri-n-octylamine (TOA) in the Presence of Certain Cations. II. Hydrochloric Acid Solutions—V. I. Tikhomirov, A. A. Kuznetsova, and E. D. Batorovskaya . . . . .	175	182
Extraction of Uranium (VI) by Tri-n-octylamine (TOA) in the Presence of Certain Cations. III. Sulfuric Acid Solutions—V. I. Tikhomirov, A. A. Kuznetsova, and E. D. Batorovskaya . . . . .	180	187
Influence of Structural Factors on the Thermodynamic Characteristics of the Extraction of Salts of Basic Dyes. IV. Extraction of Brilliant Green—K. S. Krasnov and F. D. Kashirina . . . . .	184	191
Complex Compounds of Cerium, Yttrium, and Uranyl with Certain Polyaminocarboxylic Acids. II—L. M. Razbitnaya . . . . .	193	202
Investigation of the Complex Formation of Pentavalent Neptunium in Phosphoric Acid Solutions by the Ion-Exchange Method—A. I. Moskvina and V. F. Peretrukhin . . . . .	198	206
Investigation of the Complex Formation of Trivalent Plutonium with Anions of Acetic, Citric, and Tartaric Acids by the Ion-Exchange Method—A. I. Moskvina, V. P. Zaitseva, and A. D. Gel'man . . . . .	206	214
Study of the Adsorption of Uranium on Polished Platinum—A. G. Samartseva . . . . .	221	230
Partition Chromatography on Ion Exchange Resins. II. Separation of Rh, Pd, Ir, and Pt—L. N. Moskvina and B. K. Preobrazhenskii . . . . .	228	237

Annual Subscription: \$95

Single Issue: \$30

Single Article: \$15

All rights reserved. No article contained herein may be reproduced for any purpose whatsoever without permission of the publisher. Permission may be obtained from Consultants Bureau Enterprises, Inc., 227 West 17th Street, New York City, United States of America.

# CONTENTS (continued)

	P A G E	
	ENG.	RUSS.
Radioactivity of Ocean Suspensions. I. Isotopes of Thorium in Ocean Suspensions —Yu. V. Kuznetsov, V. K. Legin, A. P. Lisitsyn, and Z. N. Simonyak . . . . .	233	242
BRIEF COMMUNICATIONS		
Method of Preparing Large-Size $\beta$ -Emitters—M. P. Kochina, I. A. Urayaev, and R. F. Brigeovich . . . . .	244	255
Setup for Producing Thin Homogeneous Radioactive Sources with Large Area —L. Z. Malkin, I. D. Alkhazov, and A. M. Sokolov . . . . .	248	258



(RADIOKHIMIYA)  
Editorial Board

I. P. Alimarin  
A. I. Brodskii  
E. K. Gerling  
A. A. Grinberg  
V. R. Klokman  
L. V. Komlev  
B. V. Kurchatov  
A. N. Nesmeyanov  
A. V. Nikolaev  
B. P. Nikol'skii (Acting Editor)  
S. Z. Roginskii  
V. I. Spitsyn  
I. E. Starik  
V. M. Vdovenko (Editor-in-Chief)  
A. P. Vinogradov

# SOVIET RADIOCHEMISTRY

A translation of **RADIOKHIMIYA**

a publication of the Academy of Sciences of the USSR

© 1965 CONSULTANTS BUREAU ENTERPRISES, INC.  
227 West 17th Street, New York 11, N. Y.

Volume 6, Number 3

May-June, 1964

## CONTENTS

	P A G E	
	ENG.	RUSS.
Georgii Vasil'evich Gorshkov (On His 60th Birthday) . . . . .	253	261
Isolation of Promethium-147 and Europium-155 from a Mixture of Fission Products by Extraction with Tributyl Phosphate—N. E. Brezhneva, V. I. Levin, G. V. Korpusov, E. N. Patrusheva, N. M. Man'ko, and L. T. Khor'shko . . . . .	256	265
Principles of the Distribution of Europium between Nitric Acid Solutions and Certain Organophosphorus Compounds—E. N. Patrusheva, N. E. Brezhneva, and G. V. Korpusov . . .	266	276
Influence of the Charges of Ions on Extraction. I. Extraction of Salts of the Composition 1:1, 1:2, 1:3—V. I. Kuznetsov and L. I. Moseev . . . . .	271	280
Extraction of Scandium by Alkylphosphoric Acids—A. P. Samodelov . . . . .	277	286
Compensation Effect in the Kinetics of Reactions of the Actinides—V. P. Kazakov, B. I. Peshchevitskii, and A. M. Erenburg . . . . .	282	291
Infrared Spectra of Uranyl Perchlorate and its Crystal Hydrates. Coordination of the Perchlorate Ion—V. M. Vdovenko, L. G. Mashirov, and D. N. Suglov . . . . .	289	299
Radiation Chemical and Photochemical Behavior of Certain Co (III) Hexammines —L. N. Neokladnova and G. A. Shagisultanova . . . . .	295	305
Interaction of Tritium Recoil Atoms with Terpenes—An. N. Nesmeyanov, Wang Liang-shen, and A. Bekker . . . . .	304	314
Behavior of Tritium Recoil Atoms in Certain Binary Systems—E. N. Avdonina, An. N. Nesmeyanov, and Wung Hao-ming . . . . .	312	323
Chemical Forms of the Radioactive Isotope As <sup>76</sup> , Formed in the Neutron Irradiation of Phenylarsonic Acid, and the Production of Enriched Preparations of As <sup>76</sup> —N. P. Rudenko, T. M. Shuvaeva, and N. I. Merzts . . . . .	318	329
Study of the Isotopic Exchange of Chlorine in the Dichloramide Group Contained in a Complex of Quadrivalent Platinum—Yu. N. Kukushkin and A. F. V'yugina . . . . .	324	336
Principles of I. I. Chernyaev's Trans-Influence—Yu. N. Kukushkin and A. F. V'yugina . . . . .	330	342
Vibrational Spectra of Complexes of Zirconium with Organophosphorus Derivatives. III. Spectra of Extracts of Zirconium from Strong Nitric Acid Solutions—G. P. Nikitina and M. F. Pushlenkov . . . . .	335	347
Electrolytic Method of Decomposing Cerium Amalgam—M. G. Sayun and K. Kh. Tsareva . . . .	347	360

Annual Subscription: \$95

Single Issue: \$30

Single Article: \$15

All rights reserved. No article contained herein may be reproduced for any purpose whatsoever without permission of the publisher. Permission may be obtained from Consultants Bureau Enterprises, Inc., 227 West 17th Street, New York City, United States of America.

# CONTENTS (continued)

P A G E  
ENG. | RUSS.

## BRIEF COMMUNICATIONS

Production of Chlorobenzene Labelled with the Radioactive Isotope of Chlorine, $Cl^{36}$ , by the Isotopic Exchange Method—A. N. Bantysh, Ye. D. Zel'venskii, and V. A. Shalygin. ....	354	367
Reaction of Hot Tritium Atoms with Ethylene in the Gas Phase—B. G. Dzantiev and A. P. Shvetchikov. ....	359	371
Reactions with Hot $C^{14}$ Atoms in the Gas Phase in the Ethylene-Ammonia System —B. G. Dzantiev and A. P. Shvedchikov. ....	361	373
Determination of Protactinium in Weakly Radioactive Silicate Materials—A. N. Elizarova and Yu. V. Kuznetsov. ....	364	375
Preparation of a Source of $Co^{57}$ on a Chromium Backing for the Study of the Mössbauer Effect —S. V. Tomilov. ....	366	377

## LETTER TO THE EDITOR

Concerning the Article of B. Z. Iofa and G. M. Dakar: "Extraction of Complex Acids with Oxygen-Containing Solvents. II. Calculation of the Equilibrium Constants of the Hydrolysis of Antimony (V) in Hydrochloric Acid Solutions and Investigation of the Mechanism of its Extraction with Di-N-Butyl Ether"—V. V. Fomin. ....	367	378
--	-----	-----

## NECROLOGY

Iosif Evseevich Starik. ....	370	381
------------------------------	-----	-----

# SOVIET RADIOCHEMISTRY

A translation of **RADIOKHIMIYA**

a publication of the Academy of Sciences of the USSR

© 1965 CONSULTANTS BUREAU ENTERPRISES, INC.  
227 West 17th Street, New York 11, N. Y.

Volume 6, Number 4

July-August, 1964

## CONTENTS

	P A G E	
	ENG.	RUSS.
Distribution of Alkali Metal Halides between Aqueous Solutions and Organic Solutions of Iodine.		
I. Distribution of Cesium and some other Alkali Metal Iodides between Aqueous Solutions and Organic Solutions of Iodine—V. M. Vdovenko and L. S. Bulyanitsa . . . . .	373	385
Distribution of Alkali Metal Halides between Aqueous Solutions and Organic Solutions of Iodine.		
II. Distribution of Cesium Iodide between Aqueous Solutions and Tributyl Phosphate Solutions of Iodine—V. M. Vdovenko and L. S. Bulyanitsa . . . . .	386	399
Extraction of Complex Acids by Oxygen-Containing Solvents. III. Investigation of the Mechanism of Extraction of Trivalent Antimony—B. Z. Iofa and G. M. Dakar . . . . .	396	411
Extraction of Complex Acids by Oxygen-Containing Solvents. IV. Study of Extraction of Stannic Chloride—B. Z. Iofa, K. P. Mitrofanov, M. V. Plotnikova, and S. Kopach . . . . .	404	419
Association of Organophosphorus Derivatives with Chloroform and the Effect of the Nature of the Diluent on the Extraction of Salts—M. F. Pushlenkov and E. V. Komarov . . . . .	410	426
Effect of the Magnitude of Charges on Ions on Extraction. II. Concentrated and Dispersed Charges—V. I. Kuznetsov and L. I. Moseev . . . . .	417	433
Extraction of Technetium from Nitric Acid Solutions by Derivatives of Phosphoric Acid and Trioctylamine—A. A. Zaitsev, I. A. Lebedev, S. V. Pirozhkov, and G. N. Yakovlev . . . . .	423	440
Extraction of Technetium (VII) from Alkaline Solutions by Pyridine Derivatives—A. A. Zaitsev, I. A. Lebedev, S. V. Pirozhkov, and G. N. Yakovlev . . . . .	428	445
Investigation of Ternary Solutions by the Isopestic Method. IV—A. N. Kirgintsev and A. V. Luk'yanov . . . . .	432	449
Investigation of Heterogeneous Equilibria in the Ternary System $\text{UO}_2(\text{NO}_3)_2\text{—HNO}_3\text{—H}_2\text{O}$ .		
I. Solubility Isotherms of the System $\text{UO}_2(\text{NO}_3)_2\text{—HNO}_3\text{—H}_2\text{O}$ at 25, 35, and 50°C—M. A. Yakimov and V. Ya. Mishin . . . . .	437	454
Determination of Uranium in Fluoride-Chloride Solutions—P. N. Palei, A. A. Nemodruk, and R. Yu. Deberdeeva . . . . .	442	459
X-Ray Study of the System $\text{U}_3\text{O}_8\text{—U}_2\text{O}_5$ —N. I. Blinova, V. V. Kurbatov, and V. M. Solntsev . . . . .	445	463
Measurement of Self-Diffusion Coefficients of Radioactive Isotopes in Dilute Solutions—I. E. Starik and A. I. Yurtov . . . . .	448	466
Study of the State of Radioactive Isotopes by the Diffusion Method. I. Methods of Measuring Diffusion Coefficients of Radioactive Isotopes in Extremely Dilute Solutions—I. E. Starik, F. L. Ginzburg, and B. N. Raevskii . . . . .	450	468

Annual Subscription: \$95

Single Issue: \$30

Single Article: \$15

All rights reserved. No article contained herein may be reproduced for any purpose whatsoever without permission of the publisher. Permission may be obtained from Consultants Bureau Enterprises, Inc., 227 West 17th Street, New York City, United States of America.

# CONTENTS (continued)

	P A G E	
	ENG.	RUSS.
Study of the State of Radioactive Isotopes by the Diffusion Method. II. Self-Diffusion Coefficients of Zr in Hydrochloric Acid Solutions—I. E. Starik, F. L. Ginzburg, and V. N. Raevskii . . . . .	455	474
Determination of the Yields of some Fragments from the Fission of Heavy Nuclei by Multicharged Ions. II. Fission of $^{238}\text{U}$ by $^{22}\text{Ne}$ Ions—I. Brandshtet, I. Zvara, T. Zvarova, V. Knoblokh, M. Krzhivanek, Ya. Maly, and Su Khun-Gui . . . . .	460	479
Chemical Action of $^{38}\text{Cl}$ Recoil Atoms in Chloromethanes (Peculiarities of the Yields of the $^{37}\text{Cl}(n, \gamma)^{38}\text{Cl}$ Reaction in Comparison with $^{81}\text{Br}(n, \gamma)^{82}\text{Br}$ —L. Vasharosh, É. S. Filatov, and A. N. Nesmeyanov . . . . .	465	484
BRIEF COMMUNICATIONS		
Processes and Products of the Interaction of High-Molecular Compounds with Inorganic Salts. IV. Reactions of Aqueous Solutions of Polyacrolein with Tannin and Gelatin in Salt Solutions—I. V. Andreeva, G. O. Keshishyan, F. P. Andreev, and L. T. Danilov . . . . .	470	491
Investigation of Complex Formation in Nonaqueous Solutions. VI. Determination of the Degree of Solvation by the Polytherm Method—A. A. Chaikhorskii . . . . .	473	494
Study of the State of Radioactive Isotopes by the Diffusion Method. III. Diffusion Coefficients of $\text{Sr(II)}$ , $\text{Ce(III)}$ , $\text{Am(III)}$ , $\text{Th(IV)}$ , $\text{Pu(IV)}$ , and $\text{Np(V)}$ —I. E. Starik, F. L. Ginzburg, and B. N. Raevskii . . . . .	477	496
Heat of Solution of Uranyl Nitrate Dihydrate in Tributyl Phosphate—Yu. A. Afanas'ev . . . . .	480	499
Isolation of Carrier-Free $^{117\text{m}}\text{Sn}$ and $^{111}\text{In}$ from a Cyclotron Target—I. M. Rozman, Yu. A. Ryukhin, and A. F. Chachakov . . . . .	482	500

(RADIOKHIMIYA)  
Editorial Board

I. P. Alimarin  
A. I. Brodskii  
E. K. Gerling  
A. A. Grinberg  
V. R. Klokman  
L. V. Komlev  
B. V. Kurchatov  
A. N. Nesmeyanov  
A. V. Nikolaev  
B. P. Nikol'skii (Acting Editor)  
S. Z. Roginskii  
V. I. Spitsyn  
I. E. Starik  
V. M. Vdovenko (Editor-in-Chief)  
A. P. Vinogradov

# SOVIET RADIOCHEMISTRY

A translation of RADIOKHIMIYA

a publication of the Academy of Sciences of the USSR

© 1965 CONSULTANTS BUREAU ENTERPRISES, INC.  
227 West 17th Street, New York 11, N. Y.

Volume 6, Number 5

September-October, 1964

## CONTENTS

	P A G E	
	ENG.	RUSS.
Complex Formation of the Uranyl Ion with Salicylic Acid. I. Study of Complex Formation in Solution by the Method of Spectrophotometry—V. I. Paramonova, N. B. Platonova, and V. S. Dubrovin. . . . .	487	505
Complex Formation of the Uranyl Ion with Salicylic Acid. II. Study of Complex Formation in Solution by the Ion Exchange Method—V. I. Paramonova, N. B. Platonova, and E. D. Baklanovskii . . . . .	495	513
Hydrolysis of Polonium in Perchloric Acid Solutions—I. E. Starik, N. I. Ampelogova, and B. S. Kuznetsov . . . . .	501	519
Complex Formation of Polonium with the Chloride Ion in Aqueous and Aqueous-Acetone Solutions—I. E. Starik, N. I. Ampelogova, and B. S. Kuznetsov. . . . .	507	524
On the Anionic Chloride Complex Formation of Trivalent Thallium—V. I. Paramonova, A. N. Mosevich, and Yu. N. Ignat'ev . . . . .	510	527
Solubility of Uranyl Nitrate in Mixed Solvents—V. M. Vdovenko, I. G. Suglobova, Wang I-wui, and D. N. Suglovov. . . . .	514	532
Solubility of Uranyl Perchlorate Trihydrate in Mixed Solvents—V. M. Vdovenko, I. G. Suglobova, and D. N. Suglovov . . . . .	520	539
Investigation of Heterogeneous Equilibria in the Ternary System $UO_2(NO_3)_2-HNO_3-H_2O$ . II. Solution-Vapor Equilibrium of the Binary System $HNO_3-H_2O$ at 25, 35, and 50° C —M. A. Yakimov and V. Ya. Mishin. . . . .	523	543
Investigation of Heterogeneous Equilibria in the Ternary System $UO_2(NO_3)_2-HNO_3-H_2O$ . III. Solution-Vapor Equilibrium of the Binary System $UO_2(NO_3)_2-H_2O$ at 25 and 50° C —M. A. Yakimov, V. Ya. Mishin, and V. K. Filippov. . . . .	528	548
Investigation of Heterogeneous Equilibria in the Ternary System $UO_2(NO_3)_2-HNO_3-H_2O$ . IV. Solution-Vapor Equilibrium of the System Uranyl Nitrate-Nitric Acid-Water at 25 and 50° C—M. A. Yakimov, V. Ya. Mishin, N. F. Nosova, and V. K. Filippov . . .	532	552
Infrared Spectra of Uranyl Nitrate Hexahydrate and its Aqueous Solutions—V. M. Vdovenko, D. N. Suglovov, and A. P. Taranov . . . . .	539	559
State and Complex Formation of Scandium in Solutions of Mineral Acids—A. P. Samodelov . .	548	568
Study of the Conditions of Amalgam Formation of Gadolinium, Terbium, Dysprosium, and Holmium in Electrolysis on a Mercury Cathode—V. P. Shvedov and P. G. Antonov .	561	581

Annual Subscription: \$95

Single Issue: \$30

Single Article: \$15

All rights reserved. No article contained herein may be reproduced for any purpose whatsoever without permission of the publisher. Permission may be obtained from Consultants Bureau Enterprises, Inc., 227 West 17th Street, New York City, United States of America.



# CONTENTS (continued)

	P A G E	E N G .   R U S S .
Radioactive Equilibrium in Accessory Monazites—L. V. Komlev and K. S. Ivanova . . . . .	565	585
Reactions of Hot Bromine Atoms in Liquid Binary Systems—É. S. Filatov, An. N. Nesmeyanov, and Yu. B. Chepyzhev . . . . .	574	595
Interaction of Carbon-14 Recoil Atoms with Pyridine and its Homologs—M. F. Barakat, L. P. Firsova, and An. N. Nesmeyanov . . . . .	583	605
Mechanism of Reactions of C <sup>14</sup> Recoil Atoms in Systems Containing Indole—L. P. Firsova and M. Forsys' . . . . .	589	610
BRIEF COMMUNICATIONS		
Extraction of Neptunium with Hydroxylamine Derivatives—A. V. Lapitskii, N. P. Rudenko, and Abdel Gavad Saed . . . . .	595	617
Extraction of Na <sub>2</sub> [RuNO(NO <sub>2</sub> ) <sub>4</sub> OH] · 2H <sub>2</sub> O by Aliphatic Amines—O. E. Zvyagintsev, N. M. Spitsyn, and V. N. Pichkov . . . . .	598	619
Extraction of Protactinium from Hydrochloric Acid Solutions by Tributyl Phosphate—I. D. Bulanov and A. M. Vorob'ev . . . . .	601	621
Extraction of Protactinium from Hydrochloric Acid Solutions with Methyl Isobutyl Ketone—I. D. Bulanov and A. M. Vorob'ev . . . . .	604	623
Interaction of Carbon-14 Recoil Atoms with Pyrrole, 2-Methylpyrrole, and Piperidine—M. F. Barakat, L. P. Firsova, and An. N. Nesmeyanov . . . . .	608	626
Behavior of Tritium Activity in Organic Products during Prolonged Reactor Irradiation of Hydrocarbons and Amines in Quartz Ampoules—E. N. Avdonina and B. V. Karasev . .	613	631
Chemical Changes in the $\beta$ Decay of Bi <sup>210</sup> (RaF) in Crystals of Pentaphenylbismuth—V. D. Nefedov, V. E. Zhuravlev, M. A. Toropova, and A. V. Levchenko . . . . .	615	632

**(RADIOKHIMIYA)**  
Editorial Board

I. P. Alimarin  
A. I. Brodskii  
E. K. Gerling  
A. A. Grinberg  
V. R. Klokman  
L. V. Komlev  
B. V. Kurchatov  
A. N. Nesmeyanov  
A. V. Nikolaev  
B. P. Nikol'skii (*Acting Editor*)  
S. Z. Roginskii  
V. I. Spitsyn  
I. E. Starik  
V. M. Vdovenko (*Editor-in-Chief*)  
A. P. Vinogradov

# SOVIET RADIOCHEMISTRY

*A translation of RADIOKHIMIYA*

*a publication of the Academy of Sciences of the USSR*

© 1965 CONSULTANTS BUREAU ENTERPRISES, INC.  
227 West 17th Street, New York 11, N. Y.

Volume 6, Number 6

November-December, 1964

## CONTENTS

	P A G E	
	ENG.	RUSS.
Adsorption of Complex Compounds of Uranium from Aqueous Solutions—I. D. Muzyka, É. D. Romanenko, and N. N. Tananaeva . . . . .	619	633
Investigation of the Extraction and Complex Formation of Plutonium (IV) with N-Benzoylphenylhydroxylamine—M. K. Chmutova and Yu. A. Zolotov . . . . .	625	640
Extraction Properties of the Polymer of the Isobutyl Ester of Vinylphosphinic Acid—L. A. Fedorova, N. P. Stupin, and B. N. Laskorin . . . . .	631	646
Effect of Structural Factors on the Thermodynamic Characteristics of the Extraction of Salts of Basic Dyes. V. Extraction of Salts of Methyl Green—a Dye with a Doubly Charged Cation—K. S. Krasnov and F. D. Kashirina . . . . .	635	651
Extraction of Actinide Elements by Dialkylphosphoric Acids—E. S. Gureev, V. N. Kosyakov, and G. N. Yakovlev . . . . .	639	655
Distribution of Alkali Metal Halides between Aqueous Solutions and Organic Solutions of Iodine. III. Distribution of Alkali Metal Iodides between Aqueous Solutions and Solutions of Iodine in Mixtures of Nitrobenzene and Nitromethane with Diluents of Low Polarity—V. M. Vdovenko and L. S. Bulyanitsa . . . . .	648	666
Anionic Perchlorate Complexes of Uranyl—V. M. Vdovenko, A. I. Skoblo, and D. N. Suglobov . . . . .	658	677
Application of Ion Exchange to the Study of the State of a Substance in Solution. XI. Investigation of Complex Formation of Uranyl with Malonic Acid—V. I. Paramonova, A. N. Mosevich, and Ma Tz'u-Kuang . . . . .	663	682
Investigation of Complex Formation of Americium with Neutral Organophosphorus Compounds. II—V. I. Zemlyanukhin, G. P. Savoskina, and M. F. Pushlenkov . . . . .	673	694
Infrared Absorption Spectra of Some Compounds of Uranyl with Radicals of Hydroxy Acids—Yu. Ya. Kharitonov and Z. M. Alikhanova . . . . .	680	702
Complex Formation of Nitrates of Transuranium Elements with Neutral Organophosphorus Compounds—V. I. Zemlyanukhin, G. P. Savoskina, and M. F. Pushlenkov . . . . .	690	714
Investigation of Nitrosoruthenium Complexes in Solution—V. M. Vdovenko, L. N. Lazarev, and Ya. S. Khvorostin . . . . .	699	724

Annual Subscription: \$95

Single Issue: \$30

Single Article: \$15

All rights reserved. No article contained herein may be reproduced for any purpose whatsoever without permission of the publisher. Permission may be obtained from Consultants Bureau Enterprises, Inc., 227 West 17th Street, New York City, United States of America.



# CONTENTS (continued)

	P A G E	ENG.   RUSS.
Factors Determining the Oxidative Activity of Nitric Acid in the Reaction with Uranium Dioxide—E. A. Kanevskii and A. P. Filippov . . . . .	706	732
Concentration of Radioactive Strontium and Cesium from Water by Electrodialysis—M. M. Golutvina, Yu. M. Nikolaev, T. A. Kazakova, and G. A. Kuznetsova . . . . .	711	738
Isothermal Solubility in the System $\text{NH}_4\text{F}-\text{UO}_3-\text{H}_2\text{O}$ —A. A. Opalovskii and Z. M. Kuznetsova . . . . .	716	743
Use of a Combined Emanation and Thermal Method for Studying the Decomposition of Manganese and Iron Oxalates—K. B. Zaborenko, Kung Shu-Ch'ung, L. L. Melikhov, and V. A. Portyanoi . . . . .	722	749
Isolation of Neutron-Deficient Isotopes of Elements of the Cerium Group of the Rare Earths from Erbium Irradiated with 680 MeV Protons—E. Kherrmann, Kh. Grosse-Ryken, N. A. Lebedev, and V. A. Khalkin . . . . .	727	756
Author Index, Vol. 6, 1964 . . . . .	735	
Tables of Contents, Vol. 6, 1964 . . . . .	737	

